of the optical fiber channel is connected with the transparent part of the sample bin; and

the ^{14}C testing method comprising the following steps:

mixing step: mixing up liquid carbon dioxide or supercritical carbon dioxide and scintillator in the ^{14}C testing bottle, then setting it in dark condition for a preset standing time;

counting step: inserting one end of the optical fiber into the optical fiber channel of the ^{14}C testing bottle, connecting the other end of the optical fiber to the scintillation counter, and then starting counting.

6. The ^{14}C testing method according to claim **5**, further comprising the following step before the mixing step:

pretreatment step: pre-treating the carbon dioxide into liquid or supercritical state;

wherein, if the carbon dioxide is pretreated into liquid state, the mixing ratio of the liquid carbon dioxide and the scintillator is from 10:1 to 100:1 (volume ratio) during the mixing step;

if the carbon dioxide is pretreated into supercritical state, the mixing ratio of supercritical carbon dioxide and scintillator is from 0.16 L/g to 0.4 L/g(volume mass ratio).

7. The ^{14}C testing method according to claim **5**, wherein the standing time is 2 to 5 hours.

8. The method of claim **5**, further comprising:

sampling and preparation for measuring a blending ratio of a coal and biomass co-fired power station, comprising the following steps:

particulate matter filtering step: filtering the particulate matter and water in the flue gas, and fixing the carbon dioxide of the pure flue gas in a carbon dioxide trap;

flue gas measuring step: obtaining the amount of the pure flue gas entering the carbon dioxide trap by the mass flow controller;

transferring step: transferring the carbon dioxide from the carbon dioxide trap into the ^{14}C testing device;

^{14}C testing step: measuring the ^{14}C in the carbon dioxide trap by using the mixing and counting steps;

blending ratio calculating step: calculating the blending ratio of the coal and biomass co-fired power station by using the obtained measurement of ^{14}C and the flue gas amount.

9. A sampling and preparation system used for measuring a blending ratio of a coal and biomass co-fired power station, comprising:

a sampling pipe connectable with a boiler flue of a co-fired power station, wherein the sampling pipe comprises the following elements sequentially arranged from an end close to the boiler flue to another end away from the boiler flue:

a filtering device, a mass flow controller, a carbon dioxide trap and a pumping device;

wherein the sampling and preparation system further comprises a carbon dioxide transferring device; and

a ^{14}C testing device comprising:

an optical fiber;

a scintillation counter;

a pressure-bearing shell;

a sample bin positioned in the pressure-bearing shell, wherein at least part of the sample bin is transparent;

a cavity arranged in the sample bin, wherein, the sample bin diffuses light produced in the cavity;

an injection port connected to the cavity; and

an optical fiber channel set on the pressure-bearing shell, wherein one end of the optical fiber channel is connected with the scintillation counter and the other end of the optical fiber channel is connected with the transparent part of the sample bin;

wherein the carbon dioxide transferring device is arranged to transfer the carbon dioxide from the carbon dioxide trap into the ^{14}C testing device, and the ^{14}C testing device is arranged to measure the ^{14}C in the carbon dioxide.

10. The sampling and preparation system according to claim **9**, wherein the filtering device comprises the following sequentially connected units:

a preposition dust filter, a dryer and a postposition dust filter;

wherein a cold trap is arranged between the mass flow controller and the carbon dioxide trap, and wherein a temperature of the cold trap ranges from minus 40 degrees Celsius to minus 60 degrees Celsius.

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